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ESG Performance and Corporate Financial Risk of the Alternative Capital Market in Thailand

Muttanachai Suttipun^{1*}

Abstract: This study aims to investigate the pattern and level of environmental, social and governance (ESG) performance of listed companies in the alternative capital market of Thailand, and (2) to test for the relationship between ESG performance and corporate financial risk. The population and sample data are comprised of all the listed companies in the alternative capital market in Thailand, namely, the Market for Alternative Investment (MAI). Content analysis by scoring is used to quantify ESG performance in annual reports during the period 2017–2021, while corporate financial risk is measured by the ratio of debt on equity. Descriptive analysis, correlation matrix, and multiple regression are used to analyze the data of this study. The average scores of ESG performance are 6.182 out of 11 scores. In addition, there is an increase of ESG performance in annual reports of the listed companies from 5.540 to 7.180 scores during the period being studied. Finally, the result finds a negative relationship between ESG performance and corporate financial risk. The signaling theory demonstrates an explanation proposing that the increase of ESG performance can reduce corporate financial risk. Therefore, top-management and shareholders should pay attention to ESG responsibility because it can decrease risk as well as enhance sustainable development.

Subjects: Asian Studies; Risk Communication; Sustainable Development; Business, Management and Accounting

Keywords: ESG performance; corporate financial risk; the alternative capital market; the Market for Alternative Investment; Thailand

JEL CLASSIFICATION: M40; M41; M48

1. Introduction

Environmental, social and governance (ESG) concepts are not new concerning corporate non-financial information management, because the concepts are developed from corporate governance (CG), environmental management, and corporate social responsibility (CSR). Thus, the ESG concept can lead and enhance corporations to reach sustainable development (Suttipun, 2015).

ABOUT THE AUTHOR

Muttanachai Suttipun teaches in the field of financial accounting as well as environmental, social and governance (ESG) disclosure including the other corporate voluntary disclosures. He has worked as a lecturer and researcher at the Accountancy Department, Faculty of Management Sciences, Prince of Songkla University (Hatyai Campus), Thailand since 2005. He completed his PhD (Accounting and Finance) in the area of corporate social and environmental disclosures utilizing legitimacy and stakeholder theories from the University of Newcastle, Australia in 2012. He does his researches every day.

This is because the corporate ESG concept does not communicate and focus on only some groups of stakeholders such as shareholders, investors, and creditors; but also on other groups of stakeholders such as workers and laborers, customers, suppliers, competitors, government organizations, society and community, and environmental lobbies (Park & Jang, 2021). This ESG concept has also gained interest among several stakeholder groups for various reasons. For example, top-management uses ESG performance as a corporate communication tool to increase corporate information interests for its stakeholders and to reduce information asymmetry, as well as conflicts of interest between the corporation and its stakeholders. In Thailand, the ESG concept has been adopted by the Global Reporting Initiative (GRI) Standard Guideline that is organized and divided by the Thailand Securities and Exchange Commission (SEC) into three main perspectives (including 11 topics) which main perspectives are: (1) environmental perspective (energy management, water management, waste management, and greenhouse gas management); (2) social perspective (treatment of workers/employees, responsibility to customers, and social/community development); and (3) governance perspective (good governance, sustainability risk management, supply chain management, and innovation; The Stock Exchange of Thailand (SET), 2017).

An increase of ESG performance can reduce risk and uncertainty that are directly linked to a corporation's cost of capital. In today's world, creditors and banks understand the need to think sustainably over the long-term period and are aligned with ESG goals (Deloitte, 2022). For example, creditors will not only have corporate financial performance to consider for loan approvals, but also the non-financial performance from ESG to consider as well. In addition, the creditors may be able to require lower interest rates for the corporate load. This is because corporations have enough information to communicate to their stakeholders, including creditors and banks. There are ways for creditors to have more impact in getting corporations to reduce information asymmetry between the corporations and creditors as well as ESG-related risks. Higher ESG performance signals to creditors that the corporations are well-managed and have good ESG structures and principles in place. The signaling theory can be used to explained that the increase of ESG performance can reduce corporate financial risks that directly affects creditors' decision-making for loan approvals and interest rate reductions. For instance, Sassen et al. (2016) found that corporate ESG performance can reduce risk and uncertainty in European countries. Therefore, the European Banking Authority has included corporate ESG information and performance as part of the regulatory and supervisory framework of EU Credit Institutions.

However, even though there are more than 100 empirical studies which have been done to investigate the relationship between ESG performance and firm performance, few studies exist on the relationship between ESG performance and corporate financial risk (Breedt et al., 2019; Kumar et al., 2016; Loof & Stephan, 2019; Shafer & Szado, 2018; Wamba et al., 2020). Moreover, the results of the impact of ESG performance on financial risk are owing to different methods and measurements (Endrikat et al., 2014; Landi et al., 2020). In Thailand, as the context of this study, there is no literature exploring the links between ESG performance and financial risk. The findings of prior related studies also indicate mixed and inconclusive results. Thus, the relationship between ESG performance and financial risk is still unclear and limited. For example, although many studies found a negative relationship between ESG performance and financial risk (Kumar et al., 2016; Loof & Stephan, 2019; Shafer & Szado, 2018; Sherwood & Pollard, 2017; Wamba et al., 2020), Friedman (1970) found that an increase of ESG performance can increase corporate financial risk because ESG actions and activities may increase costs and expenses that reduce corporate financial performance (thus raising the risks). This is because some corporations provide ESG performance and disclosure to hide their bad practices. However, Breedt et al. (2019) found no impact of ESG performance on firm financial risk. Therefore, the relationship between ESG performance and corporate financial risk has not yet been clearly understood.

There are several motivations behind this study to focus on the alternative capital market in Thailand. Firstly, all studies of ESG practice and performance in Thailand have only focused on the main market capital, namely, the Stock Exchange of Thailand (SET); but the alternative capital

market has never yet been investigated. Moreover, much of the literature in Thailand has been aimed at investigating the influence of ESG performance on corporate financial performance (Asvathitanont & Tangjitprom, 2020; Suttipun, 2021; Suttipun & Yordudom, 2022). No study exists on the relationship between ESG performance and corporate financial risk. Thailand, as an emerging-market country, is coming onboard; though its current strategies largely focus on ESG concepts and sustainability (Deloitte, 2022). Next, the listed companies in the alternative market capital of Thailand are mostly family-owned businesses with high family ownership concentration that can weaken a firm's corporate governance, as well as corporate social and environmental responsibility according to ESG principles (Suttipun, 2015; Suttipun & Saelee, 2015). The sample of this study does not include the large multinational firms like those in developed countries such as European countries, Australia, New Zealand, Japan, Singapore, South Korea, and United States of America; but there are only small and medium-sized firms that bring more variety to the investigation of firms. In addition, the average ESG practice in Thailand is relatively low as compared to that of developed countries.

Therefore, from the research problems above, this study aims to: (1) investigate the pattern and level of environmental, social and governance-related (ESG) performance of listed companies in the alternative capital market of Thailand from 2017 to 2021, and (2) to test for a relationship between ESG performance and financial risk. There are two main questions as such: What are the patterns and levels of ESG performance of Thai-listed companies within the alternative capital market? and is there a negative relationship between ESG performance and corporate financial risk?

This study provides some expected contributions. Firstly, in terms of an expected theoretical contribution, the results of the levels and patterns of ESG performance of listed companies, and the relationship between ESG performance and financial risk, can light the evident gap between the alternative capital market in Thailand and main capital markets in other developed countries where more statistical evidence is available. Next, the study tests whether the signaling theory can be used to demonstrate an explanation for the ability of increased ESG performance to reduce corporate financial risk. In terms of practical contributions expected, if ESG performance can reduce their financial risk and work; then, as a communication tool to all stakeholders, creditors and investors, it can then use corporate ESG performance for their investment decision-making.

The reminder of this study is divided as follows: a literature review and account of hypothesis development, including the theoretical perspective (Section 2); the research methodology employed, separated into three topics, consisting of population and sample, data collection and variable measurement, and data analysis (Section 3); research findings and discussion (Section 4); and finally a summary and suggestions for future study including possible contributions, implications, and limitations (Section 5).

2. Literature review

In this section, there are three sub-sections of literature review which are: the theoretical perspectives represented by the theory of sustainability and signaling theory, ESG performance in Thailand followed by the evolution of ESG performance in Thailand, and hypothesis development of the relationship between ESG performance and corporate financial risk.

2.1. Theoretical perspective

There are several theories explaining the impact of non-financial information performance; i.e. environmental management, corporate social responsibility, sufficiency economy philosophy, and triple bottom line on corporate financial risk, such as the legitimacy theory (Di Danto & Izzo, 2012), stakeholder theory (Caroline, 2012), agency theory (Brecht, 2018), theory of sustainability (Chang et al., 2017), and signaling theory (Almeyda & Darmansya, 2019; Barnett & Salomon, 2012; Jizi et al., 2016; Lo & Kwan, 2017). However, this study used (1) the theory of sustainability to explain the pattern and level of environmental, social and governance (ESG) performance of listed

companies, and (2) the signaling theory to explain the empirical reasons for the impact of ESG performance on corporate financial risk of listed companies in alternative capital markets in a Thai context.

In terms of the theory of sustainability, corporate economic development can create big impacts to society and environment such as in environmental pollution, global warming, illegal and child labor problems, social and community problems, and corruption (Chang et al., 2017). Corporate sustainable development is indicated by a form of balance between corporate economy and corporate social and environmental responsibility (Deloitte, 2022). Therefore, the ESG concept is adopted by the Global Reporting Initiative (GRI) Standard Guideline to reduce social and environmental problems created by corporate economic growth, and to reach to corporate sustainable development (The Stock Exchange of Thailand (SET), 2017). In addition, the ESG concept does not communicate and focus on only some groups of stakeholders such as shareholders, investors, and creditors, but also on other groups of stakeholders such as workers and labors, customers, suppliers, competitors, government organizations, society and community, and environmental lobbies (Park & Jang, 2021). In this study, the theory of sustainability is used to explain the pattern and level of environmental, social and governance (ESG) performance of listed companies within the alternative capital market in Thailand.

In terms of the signaling theory, environmental, social, and governance performance of Thai corporations is used to reduce or close the gap in information asymmetry, as well as any conflicts of interest between corporations and their stakeholders, especially creditors. Thus, if the creditors have enough financial information on financial performance from the financial statements and accounting notes; and non-financial information from environmental, social, and governance performance; they will have greater information to make a decision to give not only loan and mortgage approvals, but also lower interest rates. Jizi et al. (2016) explained that top-management has more information than its stakeholders. This is because top-management's decisions can send any signal to the stakeholders for future decision-making. For example, companies experiencing customer boycotts will send a negative signal to the investors about corporate competitive advantage and growth opportunity (Barnett & Salomon, 2012). Therefore, the signaling theory can be adopted in this study to explain an impact of environmental, social, and governance performance on financial risk because the companies send good signals of non-financial information represented by environmental, social, and governance performance to the creditors who use the information for their decision-making as to funding (Lo & Kwan, 2017).

2.2. ESG performance in Thailand

ESG has played an important role in corporate decision-making and strategies. In addition, ESG commitment can enhance government and stakeholder community relations (Landi et al., 2020). This is because ESG can improve the (1) quality of communication between corporations and their stakeholders, (2) sustainable development, (3) accuracy of analysts' forecasts, and (4) corporate outcomes such as in financial performance, firm value, and reputation. In Thailand, the listed companies have to provide ESG information in their annual reports, namely, one report under the regulations of the Stock Exchange of Thailand (SET) required since 2015. The Stock Exchange of Thailand (SET) has adopted the Global Reporting Initiative (GRI) Standard Guideline for listed companies in the main capital market to assess and evaluate a company's long-term economic, social, and environmental performance, including sustainable development. Moreover, the notion of GRI is also used for investors who need to have enough information for decision-making. Therefore, environmental, social, and governance (ESG) performance in Thailand is part of the GRI Guidelines (The Stock Exchange of Thailand (SET), 2017).

The revolution of ESG in Thailand began in 1999 when the Thailand Institute of Directors launched the corporate governance concept for listed companies after the Tom Yum Goong Financial Crisis. In 2006, corporate social responsibility (CSR) was launched and included the corporate actions and activities of listed companies in Thailand under corporate social

responsibility guidelines of the Thailand Securities and Exchange Commission (SEC) in the form of voluntary reporting. In 2013, CSR was mainly focused on CSR-in-process rather than CSR-after-process to enable listed companies to maintain sustainable development. Since 2015, CSR and corporate governance have been merged into the ESG concept which has been developed by the GRI Standard Version Guidelines.

CSR practice and ESG responsibility in Thailand are guided by the Sufficiency Economic Philosophy (SEP) that was outlined and reiterated by His Majesty King Bhumibol Adulyadej to ultimately lead Thai corporations to sustainable development (Suttipun & Arwae, 2020). The SEP strives to create sustainable equilibrium between economic, social, and environmental perspectives, and the ultimate goal of SEP is to sustain long-term corporate growth (Suttipun & Saefu, 2017). The SEP concept consists of three principles and two conditions which are moderation, reasonableness, self-immunity, knowledge, and morality. There is a similarity between the ESG concept and SEP practice. For example, the moderation principle focuses on creating business alliances, efficiently managing human resources, promoting human resource development, and contributing to social responsibility. The reasonableness principle provides an understanding between corporate actions and activities, and their stakeholders' demands. The self-immunity principle is used as a role model for corporate risk management. In terms of the two conditions, the knowledge condition provides information such as corporate research and development, staff training, and IT development; while the morality condition is about environmental responsibility and protection, social and community service, and corporate governance compliance.

Since ESG performance was developed and supported by the Stock Exchange of Thailand (SET) in 2015, corporate reporting has become part of corporate sustainable development (The Stock Exchange of Thailand (SET), 2022). The main importance of environmental, social, and governance disclosure is (1) the process of observing and consolidating data on sustainability to serve corporate evaluation and improve business efficiency that include reducing risks and creating opportunities to earn income or reduce operating expenses, (2) the process that analyzes stakeholders and supports communication and comprehension of issues that stakeholders react to, which enables corporate managers to properly maintain their competitiveness, (3) the credibility of the corporation which reflects on the role and responsibility along with representation of performance for corporate sustainable growth, (4) the tools which reflect the potential of the business and attracts investors who want to invest in quality corporations that create long-term returns, and (5) consideration of ESG-in-process and ESG-in-product rather than ESG-after-process. Many companies in the SET have been chosen by the SET as Thailand Sustainable Investment (THSI) firms which include environmental, social, and governance performance in their annual reports. Moreover, ThaiPat, which is an organization in the SET looking after corporate social and environmental responsibility for sustainable development, has provided the ThaiPat ESG Index for investors to compare investment returns and other data for their decision-making.

ESG performance is classified into eleven points within three dimensions of environmental, social, and governance factors. The first dimension is pointed and divided into energy management, water management, waste management, and greenhouse gas management. The second dimension, social disclosure, consists of equitable and fair human resources, taking care of safety and occupational health that includes having a good relationship with communities, and consists of fair treatment of workers/employees, demonstrates responsibility to customers, and promotes social/community development. Finally, the third dimension, governance disclosure, provides for good corporate governance policy, transparent operations, resists corruption, and protects the stakeholders' benefits. This last dimension also consists of good governance, sustainability risk management, supply chain management, and innovation.

Corporate ESG performance and disclosure is used to formulate a credit valuation. This is because ESG refers to measuring the sustainable and environmental social impacts of corporate investment. Corporate ESG performance is also used to help banks to identify risks and uncertainty

linked to causes such as climate change, labor policy, customer rights or mismanagement of board members. Finally, ESG performance is considered in a creditor's decisions in measuring corporate resilience over the long-term, industrial materials ESG risks, and to assist the financial institution in better-informed decision-making while evaluating the borrowers (Deloitte, 2022). For example, ESG factors are used by banks or creditors for the evaluation of borrowers such as in environmental perspectives (water and energy consumption, waste management, emissions, and environmental compliance), social perspective (goods and services, workforce ethics, and treatment and welfare of communities), and governance perspectives (rights and equitable treatment of stakeholders, disclosure and transparency, and responsibility of the board).

2.3. Hypothesis development

Many studies have found a negative relationship between ESG performance and financial risk (Kumar et al., 2016; Loof & Stephan, 2019; Shafer & Szado, 2018; Sherwood & Pollard, 2017; Wamba et al., 2020). This can be explained by the signaling theory which states that the increase of ESG performance can reduce corporate financial risk which directly affects creditors' decision-making for loan approvals and interest rate reductions. In Europe, for instance, the European Banking Authority (2018) has included corporate ESG information and performance in the regulatory and supervisory framework of EU Credit Institutions. Therefore, creditors will provide loans with lower interest rates if corporate ESG performance is high—resulting in lower financial risk. For example, Kumar et al. (2016) found that positive ESG performance can reduce corporate financial and non-financial risk, and increase corporate reputation. These results are similar with the findings of Wamba et al. (2020), and Shafer and Szado (2018). In addition, Sherwood and Pollard (2017) found that corporations which combine ESG information with financial information can enhance higher financial performance and reduce corporate risk compared to non-ESG integration. From a creditor's perspective, corporate ESG performance and disclosure is used as a forecasting tool to understand corporate non-financial activities and strategies as well as financial activities, thus mitigating perceived risk and uncertainty for loan approvals. RBC Global Asset Management (2019) asked 540 institutional investors around the world as to whether corporate ESG performance can (1) decrease risk and (2) motivate them to invest in corporate common stock. The results were found to correlate with their hypotheses.

On the other hand, Friedman (1970) found that an increase of ESG performance can increase corporate financial risk because ESG actions and activities may increase costs and expenses that reduce corporate financial performance, while increasing risk. Moreover, this also may be because some corporations use ESG performance data and disclosures in order to actually hide their bad practices. But, Breedt et al. (2019) found no impact of ESG performance on firm financial risk. Therefore, to find the relationship between ESG performance and corporate financial risk, which has not yet been clearly understood, this study hypothesizes that:

Hypothesis: There is a negative relationship between ESG performance and corporate financial risk of listed companies within the alternative capital market in Thailand.

3. Method

This study develops a five-year longitudinal study by employing a panel of Thai-listed companies in the alternative capital market to test whether corporate ESG performance can influence corporate financial risk. There are three sub-sections which are (1) population and sample, (2) data collection and variable measurement, and (3) data analysis.

3.1. Population and sample

The population and sample of this study is all the listed companies from the alternative capital market in Thailand, namely, the Market for Alternative Investment (MAI; The Stock Exchange of Thailand (SET), 2022). The reasons to use listed companies from the alternative capital market

instead of the main capital market are because: (1) all studies of ESG practices and performance in Thailand have just focused on only the main market capital, namely, the Stock Exchange of Thailand (SET), but the alternative capital market has never yet been investigated; (2) the listed companies in the alternative market capital of Thailand are mostly family-owned businesses with high family ownership concentration which can weaken a firm's corporate governance, as well as corporate social and environmental responsibility as per ESG principles (Suttipun & Saelee, 2015); and (3) the external capital proportion (liability) of listed companies from the alternative capital market in Thailand indicates a higher percentage than the listed companies from the main capital market (The Stock Exchange of Thailand (SET), 2022). The study excludes firms that: (1) are not in the main capital market in Thailand, namely, the Stock Exchange of Thailand (SET); (2) do not have an annual end-of-accounting period as of the 31st of December; (3) are in a financial industry or funding sector; and (4) are under rehabilitation or revocation (withdrawal). Therefore, the final sample consists of 111 firms which includes 555 firm-year observations.

3.2. Data collection and variable measurement

Data collection is collected by using secondary data from corporate annual reports during the 2017 to 2021 reporting periods, and the database of the SET Security Market Analysis and Reporting Tool (SETSMART). There are three main variable groups in this study which include their ESG performance represented by the elements of environmental, social and governance-related performance. These consist of an independent variable, financial risk as a dependent variable, and corporate characteristics as the control variable. In terms of the independent variable, content analysis by a checklist is used to quantify the level and pattern of ESG performance from corporate annual reporting from 2017 to 2021. This is because content analysis has been the most common method used to assess non-financial performance such as in environmental management, corporate social responsibility, and triple bottom line (Almeyda & Darmansya, 2019; Barnett & Salomon, 2012; Wamba et al., 2020). In addition, Krippendorff (1980) asserted that content analysis is a technique allowing a replicable and valid inference to be drawn from data according to the context. In this study, ESG performance is separated into three variables, namely, environmental, social, and governance disclosures, as adopted by the Global Reporting Initiative (GRI) Standard Guideline (The Stock Exchange of Thailand (SET), 2017). ESG performance is divided into three main categories which are (1) environmental, (2) social, and (3) governance performance. Environmental performance is separated into water management, energy management, gas emission management, and waste management. Social performance is divided into three sub-categories which are labor responsibility, customer responsibility, and social and community development. As to categories of governance performance, there are four sub-categories which are good corporate governance, risk management for sustainability, corporate innovation, and supply chain management. On the other hand, corporate financial risk is measured by the ratio of debt-on-equity which is collected by the SETSMART website. Finally, there are four corporate characteristics used as the control variable in this study, which are firm size, profitability, auditor type, and COVID year. All variables' proxies are chosen by the previous related studies (Almeyda & Darmansya, 2019; Suttipun, 2021; Suttipun & Yordudom, 2022). All the variable measurements and notations that are used are shown in Table 1, below.

3.3. Data analysis

In analyzing the data, this study's objectives are: (1) to investigate the pattern and level of ESG performance of listed companies in the alternative capital market of Thailand, and (2) to test for the relationship between ESG performance and financial risk, descriptive analysis, correlation matrix, and multiple regression which are used. Firstly, descriptive analysis is used to analyze the pattern and level of ESG performance as well as the other variables in this study. Correlation matrix is used to test for any multicollinearity problem between variables. Finally, multiple regression is used to examine the relationship between ESG performance and financial risk. Moreover, there are two main equations in this study, which are:

Table 1. Variable measurements

Variables	Notation	Measurement
ESG performance	ESG	Check list by scoring
Financial risk	RISK	Ratio of debt on equity
Firm size	SIZE	The natural logarithm of total asset
Profitability	ROA	Ratio of return on asset (ROA)
Auditor type	AUDIT	Dummy variables as 1 = Big4 auditors, and 0 = otherwise
COVID year	COVID	Dummy variables as 1 = COVID year, and 0 = otherwise

$$\text{RISK} = \beta_0 + \beta_1\text{ESG} + \epsilon \tag{ModelA}$$

$$\text{RISK} = \beta_0 + \beta_1\text{ESG} + \beta_2\text{SIZE} + \beta_3\text{ROA} + \beta_4\text{AUDIT} + \beta_5\text{COVID} + \epsilon \tag{ModelB}$$

4. Findings and results

For the MAI companies listed in Thailand, 555 corporate annual reports (from 111 firms) during the period 2017–2021 were used in this study. To investigate the level and pattern of ESG performance, Table 2 summarizes the extent and level of average ESG performance as being a 6.182 average score out of a possible 11 (SD = 2.092) by average score-checking. Moreover, there was an increase in ESG performance from 5.5405 average scores (SD = 0.2078) in 2017, to 5.8739 average scores (SD = 0.1974) in 2018, 6.0180 average scores (SD = 0.1928) in 2019, 6.2973 average scores (SD = 0.1870) in 2020, and 7.1802 average scores (SD = 0.1737) in 2021. However, some listed companies from the alternative capital market in Thailand still did not disclose ESG performance in their annual report (Min = 0).

Table 3 indicates a descriptive analysis of all variables used in this study by using mean, standard deviation, frequency, and percent. For example, the average of corporate financial risk measured by the ratio of debt on equity is 0.4327 (SD = 0.2289), while a firm’s size is 17.5599 (SD = 25.0426), and the ROA of Thai firms in the alternative capital market is 3.0005 average percent (SD = 13.6465). In terms of auditor type, there are 335 Big4 auditor (60 percent), and 220 non-Big4 auditors (40 percent).

Before conducting a multiple regression analysis, the assumption that the data are not multicollinear in the variables included in the analysis was first tested. Table 4 shows the correlation matrix used to test for multicollinearity between the eight variables used in this study, consisting of one dependent variable, one independent variable, and four control variables. The correlation of a pair of variables should not exceed 0.700, and the variables used in this study did not have

Table 2. Level and pattern of ESG performance during 2017 to 2021

ESG Performance	Mean	SD	Max	Min	Median
2017	5.5405	0.2078	11	0	5
2018	5.8739	0.1974	11	0	6
2019	6.0180	0.1928	11	0	6
2020	6.2973	0.1870	11	0	7
2021	7.1802	0.1737	11	0	7
Average	6.1820	2.0920	11	0	6

Table 3. Descriptive analysis of variables used in this study

Variables	Mean	SD	Max	Min
ESG	6.1820	2.0920	11	0
RISK	0.4327	0.2289	1.48	-0.46
SIZE	17.5599	25.0426	222.10	-6.06
ROA	3.0005	13.6465	107.59	-80.58
Variable		Number	Percent	Sum-percent
AUDIT	Big4 auditors	335	60	60
	Non-big4 auditors	220	40	100
		555	100	
COVID	Before COVID	223	40	40
	COVID	332	60	100
		555	100	

Table 4. Correlation matrix

Variables	RISK	ESG	SIZE	ROA	AUDIT	COVID
RISK	1	-	-	-	-	-
ESG	-.090*	1	-	-	-	-
SIZE	.262**	.024	1	-	-	-
ROA	-.329**	.066	.026	1	-	-
AUDIT	-.061	.079	.209**	.240**	1	-
COVID	.064	.182**	.027	.026	-.027	1

** is significant at 0.01 level, and * is significant at 0.05 level.

Table 5. Multiple regression

Variables	Model A		Model B	
	B	t (sig.)	B	t (sig.)
Constant	.495	16.345**	.449	15.509**
ESG	-.010	-2.165*	-.010	-2.259*
SIZE	-	-	.003	7.062**
ROA	-	-	-.005	-8.195**
AUDIT	-	-	-.016	-.824
COVID	-	-	.036	1.999*
R Square	.008		.194	
Adj R Square	.007		.187	
F-value (sig.)	4.686**		26.418**	
Max VIF	1.000		1.116	
N	555		555	

** is significant at 0.01 level, and * is significant at 0.05 level.

a multicollinearity problem because the highest Pearson correlation (between SIZE and RISK) was 0.262. Moreover, the Variance Inflation Factor (VIF) scores of each variable used in this study were also not over 10 (Yoon et al., 2018), as SIZE had the highest VIF score of 1.116 (See, Table 5). From the correlation coefficients between the six variables used in this study, there were significant correlations between RISK, ESG, SIZE, and ROA at a 0.01 level and 0.05 level, while there was no significant correlation between RISK, AUDIT, and COVID at a 0.05 level.

Table 5 indicates the findings of multiple regression analysis from both models. The R squared from the models ranges from 0.008 to 0.194, and the adjusted R squared is from 0.007 to 0.187, showing that the models explain approximately 4.686 to 26.418 percent of the variance in the data. To test the relationship between ESG performance and corporate financial risk in corporate annual reports of listed MAI companies from 2017 to 2021, the findings of both models show that there is a significantly negative relationship between ESG and RISK at the 0.05 level in both models. Moreover, in terms of control variables, there is positive relationship between SIZE, COVID, and RISK at the 0.01 and 0.05 levels in model B, while ROA is found to negatively correlate with RISK at the 0.01 level. Therefore, the hypothesis of this study is supported and accepted.

5. Discussion

To answer two main questions (what are the pattern and level of ESG performance of Thai-listed companies within the alternative capital market and, is there a negative relationship between ESG performance and corporate financial risk?), this study finds that the average scores of ESG performance are 6.182 scores out of 11 scores. In addition, there has been an increase of ESG performance in annual reports of the MAI-listed companies from 5.540 scores to 7.180 scores during period being studied. The growth of ESG performance measured by the ESG score indicates that Thai-listed companies in the alternative capital market pay more attention to environmental, social, and governance responsibilities to improve corporate sustainable development (Suttipun, 2021). Theory of sustainability can be used to explain the growth of ESG performance in Thailand (Chang et al., 2017). This may be because the corporate economic growth represented by the return on asset of listed companies within the alternative capital market in this study was better during the period being studied, which may cause greater social and environmental problems. Therefore, in view of the response to social and environmental problems, the corporations have to provide more ESG performance to balance between economic, social, and environmental perspectives.

Finally, the result finds a negative relationship between ESG performance and financial risk at the 0.05 level. In addition, firm size and COVID year have positively correlated with corporate financial risk, while there is a negative relationship between profitability and financial risk. However, the study finds no relationship between auditor type and corporate financial risk. The result of a negative relationship between ESG performance and corporate financial risk in this study is consistent with Wamba et al. (2020), Loof and Stephan (2019), Shafer and Szado (2018), and Sherwood and Pollard (2017). This can be explained by the signaling theory which indicates that the increase of ESG performance can reduce corporate financial risk that directly affects creditors' decision-making for loan approvals and interest rate reductions. In addition, corporate ESG performance tends to reduce information asymmetry between the corporations and their stakeholders (Landi et al., 2020). From a creditor's perspective, corporate ESG performance and disclosure is used as a forecasting tool to understand corporate non-financial activities and strategies, as well as financial activities that mitigate perceived risk and uncertainty for loan approvals.

6. Summary and suggestion for future study

This study investigates the pattern and level of the ESG performance of listed companies in the alternative capital market of Thailand from 2017 to 2021, and to test for the relationship between ESG performance and financial risk. This research finds that the average scores of ESG performance are at 6.182. There is an increase of ESG performance in the annual reports of the listed companies during the period being studied. Finally, the result finds a negative relationship between ESG performance and corporate financial risk.

Contributions and implications are provided from both theoretical and practical perspectives. In terms of theoretical contributions, from the result of a positive relationship between ESG performance and corporate financial risk, the signaling theory is demonstrated to explain that the increase of ESG performance can reduce corporate financial risk. This is because ESG performance

is used as a communication tool and a signal from corporations to their stakeholders. In this case, banks or external capital providers use the non-financial information of ESG performance to consider loan approvals as well as the financial information from corporate financial performance. In addition, the theory of sustainability is also able to explain the pattern and level of ESG performance of Thai-listed companies in the alternative capital market because higher corporate economic growth can directly influence social and economic problems for which the corporations have to take responsibility by providing more ESG performance. Therefore, corporate sustainability will be balanced by economic, social, and environmental perspectives. The result of the level and pattern of ESG performance of listed companies and the positive relationship between ESG performance and financial risk can reduce the evident gap between the alternative capital market in Thailand, as well as the main capital markets in other developed countries where more evidence is provided. The global community of scholars who are studying corporate sustainable development, can benefit from this study's results of the balance between economic, social, and environmental perspectives of listed companies in the alternative capital markets of economically-emerging countries where is a lack of ESG studies.

In terms of practical contributions, corporations can benefit from providing ESG performance as well as financial performance because ESG performance can reduce their financial risk and work as a communication tool to reach all stakeholders who use both financial and non-financial information for their decision-making. Creditors and banks who provide external capital for corporate financing activity can use ESG performance to consider loan approvals and interest rate reductions. Thus, in this case, the creditors will provide loans with lower rates of interest if corporate ESG performance is high, because their financial risk is low. Moreover, investors can also use corporate ESG performance for their investments because this performance can reduce the risk and uncertainty of corporations. Regulators and policy makers may be able to establish ESG information and performance as the regulatory framework of the Thailand credit approval process, as well as financial information and performance in the same manner as the European Banking Authority.

However, this study exposes some limitations. For example, only the single alternative capital market in Thailand is used in this study, where the result of relationships between ESG performance and corporate financial risk may be different in different countries, regions, and other continents. Although the study is a longitudinal study, there are just five years of data from the ESG performance investigation of listed companies in Thailand. Only the listed companies from the alternative capital market were used in this study, while there are over 600 firms that are listed on the Stock Exchange of Thailand (SET), the main capital market of Thailand. Next, content analysis can be mentioned as a limitation in this study because the technique focuses on quantitative information of ESG performance rather than qualitative information of performance. Finally, this study does not find the outcomes of ESG performance of Thai-listed companies as to whether the ESG performance can benefit corporate outcomes such as financial performance, firm value, market reaction, and corporate reputation. Therefore, to address the limitations of this study, future research is suggested for testing the influence of ESG performance on corporate outcomes in both main and alternative capital markets of similar economic communities such as the ASEAN Economic Community (AEC) or European Union (EU).

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